

What is claimed is:

1. A suction head of a vacuum cleaner with a power brush, comprising:

5 a head case connected to a cleaner body through a connecting tube and having a suction hole on the bottom;

205110-01502 a power brush positioned in the head case, some part of which protrudes outward the head case through the suction hole, to thus contact objects to be cleaned;

10 supporting means fixed to the head case, the supporting means for supporting the power brush to be in a rotary motion and in a linear motion;

a moving frame and a fixed frame formed to be cylindrical and fixed to the power brush and the supporting means in the power brush; and

15 a two degree-of-freedom motor installed to correspond to the moving frame and the fixed frame, the two degree-of-freedom motor for rotatively operating and linearly moving the power brush.

2. The suction head of claim 1, wherein the two degree-of-freedom motor comprises a rotary operating part for rotatively driving the power brush due to a mutual operation between a rotary operating magnet installed in the moving frame and a rotary operating coil installed in the fixed frame and a linear operating part for linearly operating the power brush due to a mutual operation between a linear operating magnet installed in the moving frame and a linear operating coil installed in the fixed frame.

3. The suction head of claim 2, wherein elastic means for providing elasticity are installed between the power brush and the head case so as to generate power corresponding to operating power of the linear operating part.

5 4. The suction head of claim 2, wherein the rotary operating coil and the linear operating coil are installed in the fixed frame fixed to the supporting means,

and wherein the rotary operating magnet and the linear operating magnet are installed in the moving frame fixed to the power brush.

10 5. The suction head of claim 2, wherein the moving frame having two supporting portions of a double cylindrical structure is fixed to the power brush,

and wherein the fixed frame is fixed to the supporting means so that some part of the fixed frame is inserted into a space between the two supporting portions of the moving frame.

15 6. The suction head of claim 5, wherein the rotary operating coil and the linear operating coil are installed on the inner and outer circumferences of the fixed frame, respectively,

20 and wherein the rotary operating magnet and the linear operating magnet are installed in the two supporting portions of the moving frame, where the rotary operating magnet and the linear operating magnet face the rotary operating coil and the linear operating coil.

25 7. The suction head of claim 5, wherein a connecting portion for

integrally connecting the two supporting portions is formed in the moving frame and a plurality of holes are formed in the connecting portion so that air can pass through.

5           8.       The suction head of claim 5, wherein the supporting portion positioned inside between the two supporting portions of the moving frame has a bearing means between the supporting portion and the supporting means so that the supporting portion can rotatively and linearly move in a state where the supporting portion is supported by the supporting means.

10           9.       The suction head of claim 1, wherein the bearing means for supporting the power brush is comprised between the power brush and the supporting means so that the power brush can rotatively and linearly move.

15           10.      The suction head of claim 1, wherein cooling fans for forcibly blowing air into the power brush are installed on one surface or both surfaces of the power brush.

20           11.      The suction head of claim 1, wherein the supporting means comprises a supporting shaft, both ends of which are fixed to the head case, and the bearing means installed between the supporting shaft and the power brush, the bearing means for supporting the power brush so that the power brush can rotatively and linearly move.

25           12.      The suction head of claim 11, wherein the supporting shaft

comprises shaft supporting portions protruding above the inner surface of the power brush, the shaft supporting portions for fixing both ends of the supporting shaft,

and wherein the bearing means comprises the bearing supporting portion

5 and a sleeve bearing contacting the power brush in the direction of a circumference.

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